

SEQUENCE LISTING

<110> E. I. du Pont de Nemours and Company

<120> Plant Histidine Biosynthetic Enzymes

<130> BB1255

<140>

<141>

<150> 60/105,409

<151> 1998-10-23

<160> 22

<170> Microsoft Office 97

<210> 1

<211> 433

<212> DNA

<213> Zea mays

<220>

<221> unsure

<222> (432)

<400> 1

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gctgtcgaaa aaaggatggc aagatatact attgtaactg acaggtggca aaagttcagt 360
gatgtgtttg tggatgaacc ggcattagaa tatctcgctg cctttcgagc attagttttt 420
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<210> 2

<211> 74

<212> PRT

<213> Zea mays

<400> 2

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Lys Gln Arg Leu Val Leu Asp Leu Lys Leu Ser Lys Lys Ala Arg Tyr
          35           40           45
Thr Ile Val Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp
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Glu Pro Ala Leu Glu Tyr Leu Ala Ala Phe
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taaagaaagc aggcaaaagt cgggtagatg taacaattgg gagtgctcta gatataattg 180
gaggagattt gccttacaaa gatgttgccc tttggcacag gaagcaaagt atggttgggc 240
aagtgtgaag aaacacaagg nattgatcag tattaccagt tcatttgatt caagcttctg 300
cacaaagtat nttttctgaa catttttggt caaataattc aagttaggct atctccaaca 360
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<211> 76
<212> PRT
<213> Zea mays

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Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser Thr Met Asp Asp Leu
20 25 30
Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val Asp Val Thr Ile Gly
35 40 45
Ser Ala Leu Asp Ile Phe Gly Gly Asp Leu Pro Tyr Lys Asp Val Val
50 55 60

Leu Trp His Arg Lys Gln Ser Met Val Gly Gln Val
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<210> 5
<211> 466
<212> DNA
<213> Zea mays

<400> 5
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ccagggtcag atcagcagct cttgccttat cccgctggct ggccgcagca ccggtggtgt 180
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ggatgttgtg tgcgctgctg ttagcttcag accatgcac gacattcaca aggggaaagt 360
taagcagatt gttggttcta ctcttcggga ttcattcaat gatggcatgg aacttgtgac 420
aaactttgaa tcagacaaat ctctgcaga atttgcaaaa tcatat 466

<210> 6
<211> 81
<212> PRT
<213> Zea mays

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Leu Gly Lys Met Arg Cys Ile Gly Arg Thr Asp Val Val Cys Ala Ala
20 25 30

Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln
35 40 45

Ile Val Gly Ser Thr Leu Arg Asp Ser Ser Asn Asp Gly Met Glu Leu
50 55 60

Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys Ser
65 70 75 80

Tyr

<210> 7
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<212> DNA
<213> Zea mays

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agatgagttt ttggttcatt gtgttgatgt ggagggcaaa aggttaggaa ttgatgagga 180
acttgtggaa ctattggggc actattcacc aatcccagtc acttatgctg ggggtgtgtc 240
aacaatggac gacctagaga ggataaagaa agcaggcaaa agtcgggtag atgtaacaat 300
tgaggagtgc ctagatataa ttggangaga ttgccttaac aagatgttgt ccttggcacc 360
agggagccaa gtaatggttg ggncaagtgt gaagaacncc aggggaattaa tccagtanta 420
cccagttcca ttgatnaaa ccnctggac caaaagataa tttccccgaa ccaatttttg 480
gtccnaanaa atccaggtaa ggggaatttc ccaaanaaag anccccctaa cccaaccnc 540
cccaatttcc naaaaccaa attttc 566

<210> 8
<211> 108
<212> PRT
<213> Zea mays

<400> 8
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Thr Asp Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Thr
 20 25 30
 Leu Glu Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val
 35 40 45
 Asp Val Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu
 50 55 60
 Leu Gly His Tyr Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser
 65 70 75 80
 Thr Met Asp Asp Leu Glu Arg Ile Lys Lys Ala Gly Lys Ser Arg Val
 85 90 95
 Asp Val Thr Ile Gly Ser Ala Leu Asp Ile Ile Gly
 100 105

<210> 9
 <211> 397
 <212> DNA
 <213> Zea mays

<400> 9
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 aaagaagatg aacttcttgg aggacatggt ataatgcttg gctcagatcc tgcaagccag 180
 gctgctgcac tcgaggcact acatgcatat cctggtggct tgcaagttgg aggtggaata 240
 aatttgcaga atgcaatgtc ttaccttaat gaaggggcca gtcattgtgat agtgacctct 300
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<210> 10
 <211> 130
 <212> PRT
 <213> Zea mays

<400> 10
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 20 25 30
 Pro Ala Glu Phe Ala Lys Ser Tyr Lys Glu Asp Glu Leu Leu Gly Gly
 35 40 45
 His Val Ile Met Leu Gly Ser Asp Pro Ala Ser Gln Ala Ala Ala Leu
 50 55 60
 Glu Ala Leu His Ala Tyr Pro Gly Gly Leu Gln Val Gly Gly Gly Ile
 65 70 75 80
 Asn Leu Gln Asn Ala Met Ser Tyr Leu Asn Glu Gly Ala Ser His Val
 85 90 95
 Ile Val Thr Ser Tyr Val Phe Ser Asp Gly Lys Met Asn Ile Glu Arg
 100 105 110
 Leu Thr Lys Leu Val Glu Leu Val Gly Lys Gln Ser Leu Cys Trp Thr

Leu Ala
130

<210> 11
<211> 423
<212> DNA
<213> Zea mays

<220>
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catgttataa tgcttggcgc aaatccttca agccaggctg ctgcactgga ggcactacgt 240
gcatatcctg gtggtttgca agttggaggt gggataaatt tggagaatgc aatgncttac 300
cttaatgaag gggccagaca tgtgatagtg acctcttatg tggttaggga tggcaagatg 360
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cct 423

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<213> Zea mays

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<220>
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Gln Ile Val Gly Ser Thr Leu Arg Asp Leu Ala Xaa Asp Ser Met Glu
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Leu Val Thr Asn Phe Glu Ser Asp Lys Ser Pro Ala Glu Phe Ala Lys
35 40 45
Phe Tyr Lys Ala Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly
50 55 60
Ala Asn Pro Ser Ser Gln Ala Ala Ala Leu Glu Ala Leu Arg Ala Tyr
65 70 75 80
Pro Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Glu Asn Ala Met
85 90 95
Xaa Tyr Leu Asn Glu Gly Ala Arg His Val Ile Val Thr Ser Tyr Val
100 105 110
Val Arg Asp Gly Lys Met Asn Thr Glu Arg Xaa Xaa Lys Leu Xaa Glu
115 120 125
Leu Xaa Gly Lys Gln Arg Leu
130 135

<210> 13
<211> 535
<212> DNA

<213> Zea mays

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<222> (442)

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aggtggcaga	agttcagtga	tgtgtttgtg	gatgaaccgg	cattaggata	tctcgctgcc	300
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gaggaacttg	tggaaactatt	ggggcatcat	tcaccaatcc	cagtaactta	tgctgggggt	420
gtgtcaacaa	tggatgacct	anagaggata	aagaagcang	caaaagtcga	gtanatgtaa	480
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<210> 14

<211> 177

<212> PRT

<213> Zea mays

<220>

<221> UNSURE

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<221> UNSURE

<222> (174)

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Tyr Lys Glu Asp Glu Leu Leu Gly Gly His Val Ile Met Leu Gly Ser
20 25 30
Asp Pro Ala Ser Gln Ala Ala Ala Leu Glu Ala Leu His Ala Tyr Pro
35 40 45
Gly Gly Leu Gln Val Gly Gly Gly Ile Asn Leu Gln Asn Ala Met Ser
50 55 60
Tyr Leu Ser Cys Arg Lys Lys Asp Gly Arg Tyr Thr Ile Val Thr Asp
65 70 75 80
Arg Trp Gln Lys Phe Ser Asp Val Phe Val Asp Glu Pro Ala Leu Gly
85 90 95
Tyr Leu Ala Ala Phe Ala Asp Glu Phe Leu Val His Gly Val Asp Val
100 105 110
Glu Gly Lys Arg Leu Gly Ile Asp Glu Glu Leu Val Glu Leu Leu Gly
115 120 125
His His Ser Pro Ile Pro Val Thr Tyr Ala Gly Gly Val Ser Thr Met
130 135 140
Asp Asp Leu Xaa Arg Ile Lys Xaa Ala Xaa Lys Ser Arg Val Xaa Val
145 150 155 160
Thr Val Gly Ser Ala Leu Xaa Ile Phe Gly Gly Glu Leu Xaa Tyr Lys
165 170 175

Glu

<210> 15

<211> 854

<212> DNA

<213> *Oryza sativa*

<400> 15

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acaaggaaca aaatatggtt agccaacat gatatatcag aggtataatg cttaacctgt 180
tccatcagct cgattgttat gcacagacct ccagggtcta gaagtaatgc taatgcattt 240
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aaaaaaaaaa aaaa 854

<210> 16
 <211> 49
 <212> PRT
 <213> Oryza sativa

<400> 16
 Thr Met Asp Asp Leu Glu Arg Ile Lys Arg Ala Gly Asn Ser Arg Val
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 20 25 30
 Tyr Lys Asp Val Val Leu Trp His Lys Glu Gln Asn Met Val Ser Gln
 35 40 45

Pro

<210> 17
 <211> 487
 <212> DNA
 <213> Glycine max

<220>
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 <222> (473)

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<210> 18
 <211> 108
 <212> PRT
 <213> Glycine max

<220>
 <221> UNSURE
 <222> (47)

<220>
 <221> UNSURE
 <222> (59)

<220>
<221> UNSURE
<222> (97)..(98)

<400> 18
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20 25 30
Lys Val Lys Gln Ile Val Gly Ser Thr Leu Gln Asp Leu Lys Xaa Asp
35 40 45
Gly Ser Asp Pro Val Thr Asn Phe Glu Ser Xaa Lys Ser Ala Ala Glu
50 55 60
Tyr Ala Ala Leu Tyr Lys Gln Asp Gly Leu Thr Gly Gly His Val Ile
65 70 75 80
Met Leu Gly Ala Asp Pro Leu Ser Lys Ala Ser Ala Leu Glu Ser Ile
85 90 95
Xaa Xaa Tyr Pro Gly Gly Phe Gly Lys Ser Gly Gly
100 105

<210> 19
<211> 981
<212> DNA
<213> Glycine max

<400> 19
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<210> 20
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<212> PRT
<213> Glycine max

<220>
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<222> (120)

<400> 20

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 20 25 30
 Gln Val Lys Gln Ile Val Gly Gly Thr Leu Thr Thr Ala Ser Ser Asp
 35 40 45
 Leu Lys Thr Asn Tyr Val Ser Lys Leu Pro Ala Gly His Phe Ala Lys
 50 55 60
 Leu Tyr Lys Glu Asn Gly Leu Thr Gly Ala His Val Ile Met Leu Gly
 65 70 75 80
 Pro Gly Asn Glu Glu Ala Ala Lys Glu Ala Val Gly Glu Trp Lys Asn
 85 90 95
 Gly Leu Gln Val Gly Gly Gly Ile Thr Asn Glu Asn Ala Lys Gln Trp
 100 105 110
 Ile Asp Trp Gly Ala Glu Arg Xaa Val Ile Ile Thr Ser Phe Leu Phe
 115 120 125
 Pro Asn Gly Lys Phe Ser Gln Glu Arg Leu Asp Ser Val Leu Glu Ala
 130 135 140
 Leu Gly Gly Asp Lys Glu Lys Leu Val Ile Asp Leu Ser Cys Arg Arg
 145 150 155 160
 Arg Asp Asp Thr Trp Phe Val Ala Met Asn Lys Trp Gln Thr Ile Thr
 165 170 175
 Asp Met Glu Val Asn Ala Ala Ser Ile Lys Ser Leu Glu Pro Tyr Cys
 180 185 190
 Ser Glu Phe Leu Ile His Ala Ala Asp Asn Glu Gly Leu Gln Lys Gly
 195 200 205
 Ile Asp Glu Gln Leu Val Glu Lys Leu Ala Gln Trp Cys Ser Ile Pro
 210 215 220
 Val Thr Tyr Ala Gly Gly Gly Arg Asn Leu Gln Asp Leu Asp Tyr Val
 225 230 235 240
 Lys Lys Leu Ser Gly Gly Lys Val Asp Leu Thr Ile Gly Ser Ala Leu
 245 250 255
 Asp Val Phe Gly Gly Ser Gly Val Thr Phe Asp Glu Cys Val Gln Trp
 260 265 270
 Asn Gln Arg Gln Val Ala Ser Ser
 275 280

<210> 21
 <211> 1210
 <212> DNA
 <213> Triticum aestivum

<400> 21

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cgtcgtgtgc	gccgtcagct	tcaggccatg	tatcgacatt	cacaagggga	aagttaaaca	240
gattgtttgg	tctactctcc	gggatgcatc	ggacgatggc	acggcactag	tgacaaaactt	300
tgaatcagac	aagtctccag	cagaatttgc	aaatatattat	aaagaggatg	gacttggttg	360
tggacatgta	ataatgcttg	gcgagagacc	tgcaagccgt	tctgctgccc	tggaagcact	420
acatgcatat	cctggtggtt	tgcaagttgg	aggtggaata	aatttggaga	atgcaatgtc	480
ataccttaat	gaaggagcaa	gtcacgtgat	tgtaacttct	tatgtgttta	gtgatggcaa	540
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ggacctgagt	tgtcgaaaaa	aggatggcag	atatgccatt	gtgactgaca	gatggcagaa	660
gttcagtgat	gtctttgtgg	atgggccaac	attagaacgt	cttgctgcat	atgcagatga	720
gtttttggtt	catggagttg	atgtggaggg	caaaaggtta	ggaattgatg	aggaactcgt	780
ggagctactg	ggaagtcatt	cacctatccc	gacaacatac	gccgggggcg	tgtcaacgat	840
ggacgacctg	gagaggatca	agaaagcagg	caagagccga	gtcgatgtca	ctgtcgggag	900
cgccctagac	atatttgggg	gagatttgcc	gtacgatgat	gttgtccgtt	ggcacaagga	960
gcaaaacctg	gttagcaaac	ggtgaagaaa	tcagatgtac	actttgacca	atacggtcag	1020
gttatagggc	ttgtttgctg	gacagtgtgg	cgctgacagt	ttgtgtcttg	tgtgacttcc	1080
aaagctgaag	cagaggtgtc	aacctcgggtg	tggtagagga	ccactcggta	ttcagatact	1140
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 Val Ser Phe Arg Pro Cys Ile Asp Ile His Lys Gly Lys Val Lys Gln
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 Tyr Leu Asn Glu Gly Ala Ser His Val Ile Val Thr Ser Tyr Val Phe
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Ser Asp Gly Lys Met Asn Ile Glu Arg Leu Thr Gln Leu Val Glu Leu
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Phe Leu Val His Gly Val Asp Val Glu Gly Lys Arg Leu Gly Ile Asp
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Glu Glu Leu Val Glu Leu Leu Gly Ser His Ser Pro Ile Pro Thr Thr
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Tyr Ala Gly Gly Val Ser Thr Met Asp Asp Leu Glu Arg Ile Lys Lys
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Ala Gly Lys Ser Arg Val Asp Val Thr Val Gly Ser Ala Leu Asp Ile
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Phe Gly Gly Asp Leu Pro Tyr Asp Asp Val Val Arg Trp His Lys Glu
 305 310 315 320

Gln Asn Leu Val Ser Lys Arg
 325